MODIS Technical Team Meeting
Thursday, January 17, 2001
Building 33, Room E125
3:00 P.M.

Vince Salomonson chaired the meeting. Present were Bill Barnes, Barbara Conboy, Shaida Johnston (Code 531), Dorothy Hall, Skip Reber, Steve Kempler, Eric Vermote, Ed Masuoka, Wayne Esaias, Robert Wolfe, Bruce Ramsay, and Chris Justice, with Rebecca Lindsey taking the minutes.

1.0 Upcoming Meetings
*   IGARSS 2002, June 24-28, 2002 in Toronto (abstract deadline past)
*   34TH COSPAR Scientific Assembly, October 10-19, 2002, in Houston, TX, (abstracts due 1 May)
*   AGU, Spring, May 28-June 1, Washington, D.C.
*   AMS, Atmospheric Radiation and Atmospheric Physics, first week of June, Odgen, Utah
*   MODIS Land Cover Meeting, June 3-5 (tentative), Greenbelt, MD

2.0 Meeting Minutes
Vince introduced Shaida Johnston (Code 531), who may become the end-to-end data systems/systems engineering advisor recommended by the MODIS Data Processing Review Team.

2.1 Instrument Status:
Barnes reported that Aqua should ship on the 28th of February. That would seem to mean end of March or early April is viable for launch. [Note added in proof: On Friday, word was received that April 18 is the current launch date.] Barnes said MCST would like to reprocess the L1B, and Wolfe would like to do the L1A and geolocation as well. Kempler said they could reprocess the L1s at 2x, which means it will take a year to process about two years of data.

Barnes said MCST had talked to Miami last week about MCST's evidence that RVS changes seem to be time dependent. Miami agreed. Barnes showed a plot of normalized water-leaving radiance (nLw) versus time that showed nLw changing by about 60-80% from 2000 to 2001 (See Attachment 1). Oceans/Miami accounts for this in their algorithms, but Esaias said the corrections are wrapped into polarization response and other things; it could be very ugly to tease this out.

Barnes said that Xiong and his folks will put together a set of time-dependent RVS curves, and they will have to be added to the time-dependent band degradation correction already in place. Salomonson asked what the error effect would be on chlorophyll. Barnes said it should be negligible after correction. Esaias said it has not been corrected yet, and it will take time. The sun-earth distance problem created a 50% effect in NLw;

this is an 80% change. This band is the worst case because it already has a lot of polarization effect that they have to correct.

Barnes also showed charts of the time-dependent degradation of the mirror (see Attachment 2). Originally, MCST had chosen a straight-line approach to calibration, but that has flattened out. Oceans doesn't want MCST to make any new changes right now, but MCST might go back to Band 3 (and possibly one or two other bands) and flatten the degradation to accommodate the land group. We might be off about 1% presently. Ultimately, we will use a piece-wise, time-dependent LUT. Esaias asked if Barnes had any idea about what might cause this on the instrument. Barnes said no, that usually degradation is exponential. It could be something was outgassing on the optics and it suddenly stopped, but they are also investigating electronics. As far as they know, nothing happened.

The last item Barnes discussed was that SeaWiFS would not be putting Thuillier's new solar spectrum into their reprocessing, so we don't have to do it now, but he would recommend we do it for the reprocessing.

2.2 GES DAAC Status

Kempler reported that forward processing is 20-40 hours behind leading edge. They have been pushing data to MODAPS, and when they have time they are reprocessing data acquired before November 2000. Salomonson wondered if that was a good idea, given the desire to reprocess L1B. Kempler said that this ensures a clean L0 data set. Also, they aren't using cycles that should be going to other activities; the machines would be idle if they weren't doing this.

Kempler said that Masuoka and Barnes had put together a list of requests for data, and he said that the DAAC would like the team to get in the mode of ordering data as a user. Johnston asked what procedures were in place for deciding which requests get filled. Kempler said the team sets the priorities. Usually the order is forward processing is first, then MCST requests, and then everything else. Masuoka added that the team comes with requests, and Kempler and his staff tell us the cost of the processing, based on how old the data are, whether it is the first time through the data, etc. Then all that info is brought to the PI Processing Meeting on Wednesday, where priorities are set. The final ideas are brought to the technical team meeting for the Team Leader's approval.

Kempler said that on Saturday they would be putting in a firewall and would be down about 12 hours. Also, ECS version 6A05 is scheduled for installation in early March. Kemler has heard the installation is going well at EDC DAC, but they don't have the same loads as the GES DAAC. Salomonson asked, as opposed to 6A04, did Kempler think this would be better. Kempler said probably, but he is already seeing things he doesn't like. For example, they are only testing about 10-20% of the failure modes that they know about.

2.3 MODAPS Status

Masuoka said he had three points to make. The first is that with the new version of the ECS system, 6A.05, our QA and validation folks could get data fed from the DAACs because they will have spatial and parameter subsetting. However, Esaias pointed out it is only for L3.

Masuoka said that the chilled water was off to test pumps, and thirty minutes in they lost 7 disk drives on mtvs2, which overheated and timed out. They are rebuilding the drives, but it cost us from 9:00 A.M. until the time of the meeting to rebuild. There was no data loss, but they did lose processing time. As they bring in more heat-generating Linux boxes, they will verify that we have the necessary cooling set up.

Finally, Masuoka announced that he had sent notes around to the disciplines about scheduling. They are going into preparations for Aqua ORR at end of January. They have gone through MOSS tests, and the PGEs worked successfully. However, we have not shown that we can insert full 1x for Aqua at the DAAC. Masuoka said that he heard an update for the L1A had been delivered to MCST for their review, and should go into the DAAC next week. Alice Isaacman reported at the PIP meeting that there would be a L1B LUT update as well. Masuoka cautioned that we may run into the Aqua freeze, so they need to get that L1B in soon enough to integrate outside of the freeze. They would need that around February 5.

The last item was that Rich Hucek said the cloud mask team wants to update their PGE. Since they cannot deliver it in time for the "mission-critical components" deadline at end of February, they are going to take it off the launch critical list.

Masuoka reported that the final Aqua testing would involve having mtvs2 doing 2x reprocessing, 1x of mtvs1 for forward for Terra, and the remaining mtvs1 capacity (which is about .9x) to do Aqua forward. Also, he said that they plan to validate all Linux products by the end of January.

Johnston commented that it might be risky to integrate new processors so close to Aqua launch. Esaias said that if MODAPS put all the Linux machines on the reprocessing string, it wouldn't affect Aqua at all. Masuoka said that was something to consider.

Finally, Masuoka showed charts on the scheduling of reprocessing, including when delivery of new PGEs would be expected for each discipline. The plan for Oceans is that integration usually takes about a month. After that, they plan to do some production testing. Miami and the PIs would look at the results; MODAPS would then integrate any patches that might be necessary, and production test again. With all this MODAPS should be ready to begin Ocean reprocessing by June 25, wrapping up in late September. Esaias said the schedule was conservative, and that they would like to think they would be ready before June. They would like to start the time series with a date something that would give them a consistent year if they couldn't finish the whole mission.

Masuoka next summarized the Land Schedule, which followed the same testing and integration process as Oceans. In the case of Land, all PGEs will probably be new. The

schedule has them beginning to arrive at MODAPS in early April. They will do production testing on the test system. The bottom line is that if we do reprocess L1B from March 2000 to September 2002, it would be most efficient for the L2 reprocessing for land and Atmosphere (and ocean if they could get ready again that quickly), to go at the same time. It would be also be good if collection 4 L1B could come in and run with land production tests. At any rate, the schedule will continue to be discussed.

Salomonson said that he has been thinking about having a MODIS Science Team Meeting in June before the reprocessing would begin that would us a chance get everybody up to speed.

2.4 Land Update
Justice reported that a presentation on the Rapid Response System would be be given during the Colin Powell meeting in the Building 8 conference room on January 24th. Justice also wanted to give a heads up to Conboy about organizing a land outreach workshop that they are proposing we have at Goddard in the late spring. He would provide more details as they became available. Salomonson suggested the conference room in the visitor's center, which doesn't require security clearance. Justice said that they are still working up ideas for the interdisciplinary data set, and would be getting back to Salomonson soon.

Hall noted that the cryosphere web site is going to be moved to a server in code 930, which has good security.

2.5 Oceans Update

Esaias reported that Bob Evans, Janet Campbell, and a DAAC representative had attended the recent SIMBIOS meeting, and he felt that MODIS presented itself well. He felt people were impressed. Barnes said he heard that Chuck Trees' number 1 priority was to fold SeaWiFS and MODIS ocean color together, which is one of the performance metrics. Esaias indicated that metric was one reason why this reprocessing must work. Esaias said a big source of contention is what will happen to SeaWiFS at the end of the year. Barnes said there is no budget for it right now, but it may be put into the FY 03 budget. The question is whether MODIS is good enough to replace SeaWiFS.

Esaias said that he had talked with someone from DAO about the 10-15% change in DAO PAR that happened in December, but he hasn't yet talked to Steve Running's group. He said that they would really like to develop a MODIS PAR.

2.6 NOAA-NESDIS Update

Ramsay reported that the Satellite Services Division, NOAA/NESDIS/OSDPD, in the NOAA Science Center, Camp Springs, MD, has identified 13 MODIS L1B channels to bring in through the Suitland-Goddard connection. They have an interim upgrade communication line between Suitland and Camp Springs. He also reported that the volcanic ash product will begin development in March of this year, and will have an in-

house science programmer. Operations is prepared to identify a person to work with the Land Rapid Response System team to install baseline software for a NOAA-NESDIS Land Rapid Response System. Ramsay indicated that he and Justice would be working on a FY 03 draft proposal.

Esaias said the Navy was very interested in getting the MODIS ocean data color and SST, and we would like to find out what NOAA's effort are to get those data in near real time. Esaias also asked Ramsay about the joint committee with Helen Woods that was to ensure that it is the NASA standard product that is available from the NOAA-NESDIS efforts. Ramsay said he would ask Mike Hopkins and Chris Brown, Co-Chairs, Ocean Color Product Oversight Panel, NOAA/NESDIS, to ensure the appropriate review and approval is obtained, and to provide feedback on the Navy's request. Specifically the NASA MODIS Science Team review committee is as follows:

Ocean Products: Dr. Wayne Esaias (wayne.esaias@gsfc.nasa.gov)
Land Products: Dr. Eric Vermote (eric@kratmos.gsfc.nasa.gov)
Atmospheric Products: Dr. Bill Ridgeway (bill.ridgeway@smawins.com)

Vermote told Ramsay that he could send some good data to him about the ash product, and Ramsay indicated he would follow up with him.

2.7 Conclusion
Salomonson announced that a joint meeting sponsored by the International Astronautical Federation (IAF) and the Committee on Space Research (COSPAR) in Houston in October 2002. There are sessions on Earth Observing Systems for both meetings that would be a good venue for MODIS papers. The deadline for IAF abstracts is February 1, and for COSPAR is May 1. Salomonson said he would send an email around to team members with more information.

3.0 Action Items

3.1 Reber to send Justice the mailing list that has members of the DAWG.
3.2 Justice to contact Bob Whacker.
        Status: Open.
3.3 Ramsay to forward Justice an email from him.
        Status: Open
3.4 Discipline leads to meet to resolve the issue of beta-release code and science-quality code, and what we need to say about it.
            Status: Open.
3.5 Technical team to discuss further the issue of predicted ephemeris data and how to improve it.
            Status: Open.